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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/557,666	12/13/2005	Johan Lindstrom	P/1228-204	2143

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EXAMINER

ZHANG, JUE

ART UNIT	PAPER NUMBER
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2838

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/557,666	Applicant(s) LINDSTROM, JOHAN	
	Examiner Jue Zhang	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/22/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 15-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 15, Applicant just claims computer program with intended use of control of device which is not claimed. A computer code is not patentable. There is no structural manipulation of any energy or physical state changes or control of any physical device in the program code section itself, e.g., the sections of the computer code can be written on a piece of paper. A computer software program code not claimed as embodied in computer-readable media which structured claims thereto are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Also the US Supreme Court Benson cited in Bilski, held algorithms - even algorithms that have a shift register claimed in the method claim, are not patentable. See Ex parte Bernard L. Bilski and Rand A. Warsaw. (See transcript on http://www.supremecourtus.gov/oral_arguments/oral_arguments.html).

Claim 16 is rejected because a computer readable media could be broadly construed as a piece of paper that could be FAXED to the computer, or otherwise read.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Perelle (US PG Pub No. 20020047685, hereinafter '685).

Claim 1, '685 teaches an arrangement for storing electrical energy (Fig. 1) comprising: an electric charge source (2) operable to produce a DC-system voltage between a first terminal (C1+) and a second terminal (C1-), a plurality of electrical storage modules (5) connected in series between the first terminal and the second terminal, each electric storage module having a respective nominal module voltage; a DC-to-DC converter (6) coupled to the electric charge source and to each of the electrical storage modules, the DC-to-DC converter being operable to receive incoming power from the electric charge source and to deliver a respective voltage fraction of the DC-system voltage to each of the modules wherein the DC-to-DC converter is operable to control each of the voltage fractions to vary each fraction over time within a voltage interval (e.g., the maximum balancing threshold value (Abstract) [0045] around the respective nominal module voltage of each module [0044]-[0054])(Fig. 1).

Claim 10, '685 teaches a method of charging a plurality of electrical storage modules (Fig. 1) comprising the steps of connecting the modules (6) in series between

a first terminal (C1+) and a second terminal (C1-)(Fig. 1); receiving a DC-system voltage (e.g., the output of the charger 2) between the first terminal and the second terminal, DC-to-DC converting the DC-system voltage into a respective voltage fraction per module (Fig. 1); delivering its respective voltage fraction to each of the modules, and controlling each of the voltage fractions to vary over time within a voltage interval (Vd) around a respective nominal module voltage [0044]-[0054](Fig. 1).

For claims 3, 12, '685 teaches the limitation of claims 1, 10 as discussed above. '685 further teaches that the DC-to-DC converter is operable to control the respective voltage fractions over the electrical storage modules such that an average time interval during which the voltage fraction exceeds the nominal module voltage is substantially equal with respect to all the modules (e.g., each module is made up by the same type individual component, therefore the behalf of each module over time are statistically substantially identical).

For claim 4, '685 teaches the limitation of claim 1 as discussed above. '685 further teaches that the DC-to-DC converter is operable to control the respective voltage fractions over the electrical storage modules such that an average fraction of the DC-system voltage being distributed to each module is substantially equally large for all the modules (e.g., each module are made up by the same type individual components, therefore the behalf, such as the average fraction of the voltage for each module across terminal C1+ to C1-, of each module over time are statistically substantially identical).

For claim 5, '685 teaches the limitation of claim 1 as discussed above. '685 further teaches that at least two of the electrical storage modules (e.g., the first two

modules in Fig. 1) are included in a common battery unit, the unit having a separate set of access points for each module, and each of the access points is coupled to the DC-to-DC converter (Fig. 1).

For claims 6, 14, '685 teaches the limitation of claims 5, 10 as discussed above. '685 further teaches that there are two of electrical storage modules (e.g., the first two modules)(Fig. 1).

For claim 7, '685 teaches the limitation of claim 1 as discussed above. '685 further teaches that the electrical storage modules are operable to provide power to an electrical system of a vehicle via the first and second terminals (i.e., the electrical storage modules is capable to be used to power an electrical system of a vehicle for example the audio or a GPS system of a car).

For claim 8, '685 teaches the limitation of claim 1 as discussed above. '685 further teaches that the electric charge source is an electric generator (i.e., the electric generator is inherently taught in order for the inputted AC power to be generated)(Fig. 1).

Claims 15 and 16 are rejected for the same reasons of claim 10 rejection as discussed above since the claimed computer program is just a description of the method of the rejected claim 10 as discussed above in a computer readable form.

For claims 17-18, '685 teaches the limitation of claims 1, 10 as discussed above. '685 further teaches that the DC-to-DC converter is operable to control the voltage fractions such that when one of the voltage fractions is varied to be above the respective module, another of the voltage fractions is varied to be below the respective

normal module voltage for another respective module (e.g., when the voltage of one module lowered the voltage of the other modules will go up since the total voltage delivered to all modules is defined by the charger 2)(Fig. 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perelle ('685).

Claims 2 and 11, '685 teaches the limitations of 1 as discussed above. '685 does not explicitly teach that the voltage interval represents a voltage variation of less than 25% of any of the nominal module voltages. However, '685 further teaches that the maximum threshold voltage (i.e. the voltage interval) can be chosen to be less than or at most equal to the maximum module (cell) voltage [0045]. It has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined and used an optimum value within the range as taught by '685, for example 25%, of the normal cell voltage as the voltage interval in the battery system of '685, in order to have set the

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maximum voltage variation, because '685 has demonstrated that it is a suitable method in order to have set the maximum voltage variation, and it has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The documents cited in form PTO892 describe other systems and methods for battery state estimation and prediction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jue Zhang whose telephone number is (571) 270-1263. The examiner can normally be reached on M-TH 8:00AM-5:00PM EST, Other F 8:00AM-4:00PM EST

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



JZ



KARL EASTHOM
SUPERVISORY PATENT EXAMINER